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ABSTRACT

A device for imaging a relief object without illuminating a platen is disclosed. The device includes a single electrode electroluminescent device, which may be inorganic or organic, and a current source. The current source is coupled to the single electrode of the electroluminescent device and to the relief object to be imaged. The valleys and ridges of the relief object couple current to the electroluminescent device at different magnitudes which causes the electroluminescent device to generate light at different intensities that correspond to the ridges and valleys of the relief object. The generated light forms an image of the relief object which may be focused by optical elements onto a sensor array for capture and image processing. In another embodiment of the invention, a one-to-one sensor array is located proximate the electroluminescent device to capture the image. In an embodiment of the invention which insulates the relief object from current, the electroluminescent device is covered with a variable resistance layer and the variable resistance layer is covered with a flexible electrode. One lead from the current source is coupled to the flexible electrode and another lead is coupled to the single electrode. When a relief object is brought in contact with the flexible electrode, a localized pressures generated by the ridges of the relief object form conductive paths through the variable resistance layer which are lower in electrical resistance than those formed by pressure in the areas adjacent the valleys of the relief object. The different magnitudes of current delivered through the conductive paths to the electroluminescent device cause the electroluminescent device to generate an image of the relief object without exposing the relief object to electrical current.

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